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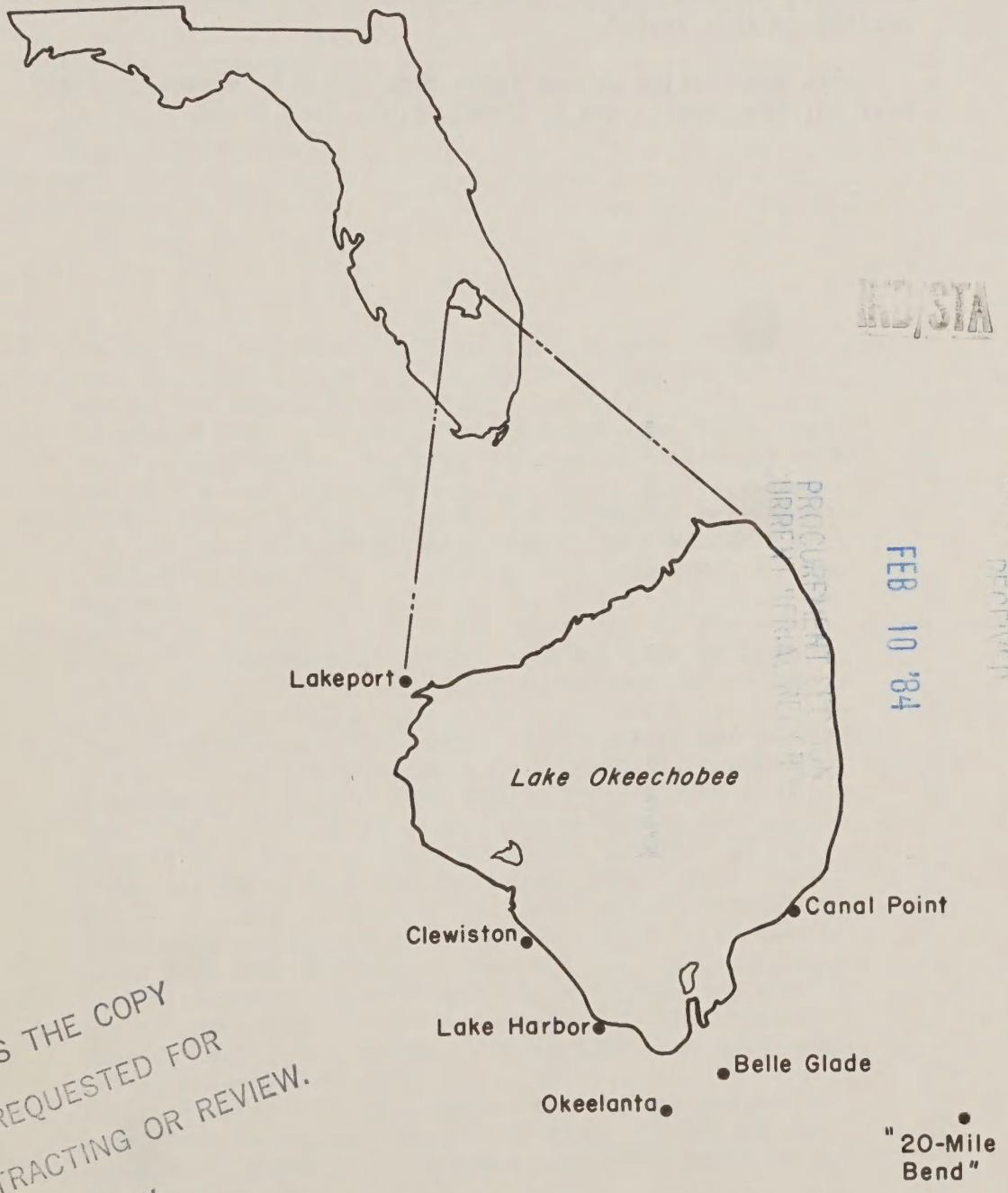
Sugarcane Variety Tests in Florida

1982–83 Harvest Season



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Sugarcane Variety Tests in Florida. 1982-83 Harvest Season. November 1983.

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SUGARCANE VARIETY TESTS IN FLORIDA

1982-83 Harvest Season

By B. Glaz,[1] M. S. Kang,[2] J. D. Miller,[3] P. Y. P. Tai,[3] J. L. Dean,[4] and O. Sosa, Jr.[5]

ABSTRACT

Twenty-seven new Canal Point (CP) varieties of sugarcane (10 in plant cane, 11 in first-ratoon cane, and 6 in second-ratoon cane) were grown in replicated experiments and harvested at 8 locations representing 5 soil series (Terra Ceia muck, Pahokee muck, Lauderhill muck, Torry muck, and Pompano fine sand). The cane and sugar yields of these varieties, interspecific hybrids of Saccharum spp., were compared with those of CP 70-1133 in the plant-cane experiments and CP 63-588 in the ratoon experiments. Each variety was also rated for its reaction to sugarcane smut, Ustilago scitaminea Sydow, in separate inoculation tests and by natural infection and for its reaction to sugarcane rust, Puccinia melanocephala H. Syd. & P. Syd., by natural infection. In the plant-cane experiments, CP 78-1247 had the best overall results, with high yields of both cane and sucrose. Other promising varieties from the plant-cane experiments were CP 78-1156, CP 78-1628, and CP 78-2114. In the first-ratoon experiments, CP 77-1776 did very well in the early-maturity analyses and had high sucrose levels throughout the season. None of the varieties was superior to the reference variety from the second-ratoon experiments. Index terms: Florida, Lauderhill muck, Pahokee muck, Pompano fine sand, Puccinia melanocephala, H. Syd. & P. Syd., Saccharum spp., sugarcane rust, sugarcane smut, sugarcane varieties, sugarcane yields, sugar yields, Terra Ceia muck, Torry muck, Ustilago scitaminea Sydow.

INTRODUCTION

Varietal selection at precommercial stages is one of the major components involved in the successful production of sugarcane, interspecific hybrids of Saccharum spp. Although production of sugar per unit area is a very important characteristic, it is not the only yield factor upon which sugarcane is evaluated. In addition, analyses are made on the quantity of cane needed to produce a

[1]Agronomist, U.S. Sugarcane Field Station, Agricultural Research Service, U.S. Department of Agriculture, Star Route, Box 8, Canal Point, Fla. 33438.

[2]Research geneticist, Agricultural Research and Education Center, Institute of Food and Agricultural Sciences, University of Florida, Belle Glade 33430.

[3]Research geneticist, U.S. Sugarcane Field Station.

[4]Research plant pathologist, U.S. Sugarcane Field Station.

[5]Research entomologist, U.S. Sugarcane Field Station.

particular sugar yield and on the relative millability of the cane. The time of year and the amount of time during the year that a variety yields its highest amount of sugar per unit area can be very important, since sugarcane harvest seasons are usually long. Sugarcane is also characteristically grown as plant and ratoon crops, thus varieties are evaluated accordingly.

Varieties that have the desired agronomic characteristics must also be productive in the presence of major disease, insect, and weed pests. The determination of pest resistance can be a complicated process that takes several years to complete. The selection team must be careful not to discard varieties that could be grown commercially without significantly increasing pest populations or causing pest-related yield losses, but it also must be careful to discard varieties that are too susceptible to pests to be grown commercially.

In recent years in many sugarcane producing regions worldwide, there have been major pest attacks on widely grown commercial varieties. It is now well accepted that sugarcane growing regions must have adequate reserves of varieties so that major varieties can be quickly replaced if they become suddenly susceptible to an established or new pest. This lesson was reemphasized this year in Florida, where a number of previously resistant varieties became susceptible to sugarcane rust, Puccinia melanocephala H. Syd. & P. Syd.

Each year at Canal Point, approximately 100,000 seedlings are evaluated from crosses made with a diverse collection (perhaps not sufficiently diverse) of sugarcane varieties. The varieties reported on herein are those that are receiving their last 3 years of evaluation by the staff at Canal Point. Each variety that successfully passes the first year of this phase will undergo an additional 3 to 5 years of testing by local industry personnel before a decision is made as to whether or not it will become a commercial variety.

Characteristics of varieties that may be valuable for breeding with other varieties are identified throughout the selection process. Varieties with specific characteristics are often requested by sugarcane breeders worldwide. From September 1982 to August 1983, Canal Point varieties were sent to Australia, Colombia, Fiji, France, Israel, Liberia, Morocco, People's Republic of China, Peru, Philippines, Senegal, Sudan, Venezuela, and Zimbabwe. In addition, Canal Point varieties were sent to Clewiston, Gainesville, Jay, Ona, and Tallahassee in Florida and also to Arizona, Hawaii, Maryland, Texas, and Washington.

TEST PROCEDURES

Twenty-three replicated test plantings of 27 new Canal Point (CP) varieties (10 in plant cane, 11 in first-ratoon cane, and 6 in second-ratoon cane) and the reference varieties, CP 70-1133 and CP 63-588, were harvested at 8 growers' farms. Both CP 70-1133 and CP 63-588 were planted in plant cane, but CP 70-1133 was used as the reference variety; however, CP 70-1133 was not planted in the ratoon experiments. There were plant-cane, first-ratoon, and second-ratoon experiments at each location. The second-ratoon experiment at New Farm, Inc., was not harvested. The experiments on Lauderhill muck included six experiments on A. Duda and Sons' farm east of Belle Glade, and at A. F. Saunders, Inc., south of Clewiston; the plant-cane experiment on the properties of Gulf and Western Food Products Co. at Okeelanta; and the first-ratoon experiment at New Farm, Inc., east of Canal Point. Six experiments on Pahokee muck, which is similar to Lauderhill and Terra Ceia muck but deeper than the former and not as deep as the latter (Snyder et al. 1978), included all three experiments at South Florida Industries near 20 Mile Bend in Palm Beach County; the first-ratoon experiment at Wedgworth Farms, Inc., east of Belle Glade; and the second-ratoon experiments at Okeelanta and New Farm. The experiments on Terra Ceia muck included the plant-cane experiments at New Farm and Wedgworth Farms, the first-ratoon experiment at Okeelanta, and the second-ratoon experiment at Wedgworth Farms. Three experiments at the Beardsley Farm near Lake Harbor were on Torry muck, and three experiments at the Lykes Brothers' Farm near Lakeport in Glades County were on Pompano fine sand.

Selection of each variety for planting in the replicated yield experiments was based on 5 years of data. Beginning

with the results of the plant-cane experiments presented herein, we replaced CP 63-588 with CP 70-1133 as the reference variety because CP 70-1133 has become the most widely grown commercial variety in Florida (Glaz 1982). In each of the 24 experiments, varieties were planted with 2 lines of seed cane per furrow in plots of 0.0065 hectare in a randomized complete-block design with 4 replications. Each plot was 10.7 meters long and 6.1 meters wide. The distance between rows was 1.5 meters, and a distance of 1.5 meters separated the end of each plot row and the beginning of the next plot row. The margins of the experiments were buffered to reduce mechanical damage and border effects, but individual four-row plots were not buffered.

Sugarcane management practices, such as fertilizing, cultivating, controlling of pests, burning, loading, and hauling, were the same for each experimental plot as for the commercial field in which the plot was located.

To evaluate early-season sugar production, 10 stalks per plot were randomly sampled from the unburned cane in 2 of the 4 replications at each location between October 18 and October 27, 1982. These samples were milled, the crusher juice was analyzed for Brix and sucrose, and the indicated yields of sugar in kilograms per metric ton of cane were determined. To calculate the yield of sugar per hectare from these preharvest data, we assumed that the preharvest yield of cane per hectare was equal to the actual yield of cane per hectare obtained at harvest.

All experiments were harvested between November 24, 1982, and April 4, 1983. After each plot had been burned, all cane was cut and piled by hand and then weighed with a tractor-mounted weighing device. Fifteen stalks were randomly selected from each plot and transported to the Agricultural Research Service's Laboratory at Canal Point for weighing, milling, and crusher-juice analysis.

All values for yields of sugar per metric ton of cane and sugar per hectare in this report are indicated (theoretical) yields calculated in accordance with a simplification of the Winter-Carp-Geerligs formula (Arceneaux 1935); an explanation of the formula was given previously (Rice and Hebert 1972).

Although the indicated sugar yields reported herein may not be obtained by all sugar factories, they are valid for comparing varieties having different milling qualities. Varietal correction factors were used in all the theoretical sugar calculations.

Statistical analyses were done according to procedures explained recently (McIntosh 1983). F-ratios were chosen according to a mixed model with treatments (varieties) fixed and locations random. The source of variation that corresponded to the error term for the effect being tested was used to calculate the least significant difference (LSD). LSD was used regardless of significance of F-ratios in all analyses. Significant differences were at the 10% probability level. LSD values at the 5% probability level were included in the tables for readers who prefer to use that level.

RESULTS AND DISCUSSION

The parentage, variety correction factor, and reactions to smut and rust for each variety included in these tests are listed in table 1. Tables 2-6, 7-11, and 12-16 contain the results of the plant-cane, first-ratoon, and second-ratoon experiments, respectively.

Plant Cane

CP 70-1133 yielded significantly more metric tons of cane per hectare (TC/H) than any other variety (table 2). However, CP 78-1247, because of its moderately high yield of TC/H and excellent yield of sugar (kilograms) per metric ton of cane (KS/T), yielded more kilograms of sugar per hectare (KS/H) than CP 70-1133 and significantly more KS/H than any variety except CP 70-1133 (tables 2, 5, and 6). In KS/H yields from the preharvest samples, CP 78-1247 was also significantly higher than any variety except CP 70-1133 (table 4).

CP 78-2114, CP 78-1628, and CP 78-1156 had KS/H yields not significantly less than that of CP 70-1133 and not significantly different from each other (table 6). CP 78-2114 had a significantly higher TC/H yield than CP 78-1156; otherwise, there were no significant differences in TC/H among these varieties. All of the above experimental

varieties yielded significantly less KS/T than CP 78-1247. However, CP 78-1628 and CP 78-1156 had significantly higher KS/T yields than CP 70-1133 and CP 78-2114, which were not significantly different from each other (table 5).

All of the promising plant-cane varieties were labeled as resistant to smut and rust. However, there were low levels of smut in plots of CP 78-1247 and CP 78-1628.

First-Ratoon Cane

CP 77-1414, CP 77-1055, and CP 77-1008 yielded significantly more TC/H than CP 63-588 (table 7). Of the above new varieties, only CP 77-1414 and CP 77-1055 yielded significantly more KS/H than CP 63-588 (table 11). However, all three of the above new varieties have characteristics that preclude their use commercially. The variety correction factor of CP 77-1414 is too low, the smut susceptibility of CP 77-1055 is too high, and the rust susceptibility of CP 77-1008 is too high (table 1). In addition, the low KS/T yields of CP 77-1414 and CP 77-1008 detract from their desirability (table 10).

CP 77-1776 had significantly higher KS/T yields than all other varieties in both the preharvest and harvest experiments (tables 8 and 10). In preharvest and harvest KS/H yields, CP 77-1776 was not significantly different from CP 63-588 (tables 9 and 11). However, CP 77-1776 had these respectable KS/H yield levels with a TC/H yield that was significantly lower than that of CP 63-588 (table 2). Based on current data, the smut rating of CP 77-1776 was changed from intermediate in 1982 (Glaz et al. 1982) to resistant in 1983 (table 1).

Second-Ratoon Cane

CP 76-1306 and CP 75-1322 had significantly higher TC/H yields than CP 63-588 (table 12). However, neither of the above two varieties nor any other variety had higher KS/H yields than CP 63-588 (table 16). CP 76-1519, which had relatively high yields in the previous 2 years (Glaz et al. 1981, 1982), declined in relative performance in 1983. In addition, CP 76-1519 became infected with rust in 1983, and although labeled as intermediate (table 1), it was very close to susceptible.

SUMMARY

Results from the plant-cane experiments revealed one outstanding and three promising varieties. CP 78-1247 yielded more KS/H than any variety except CP 70-1133. It was also one of the varieties in the highest category for KS/T yield. CP 78-2114, CP 78-1628, and CP 78-1156 had KS/H yields not significantly less than that of CP 70-1133. CP 78-1628 had relatively balanced levels of TC/H and KS/T. The highest yield component for CP 78-2114 was TC/H, and the strongest component for CP 78-1156 was KS/T.

Combining the data of the last 2 years (1982-83) indicated one promising variety from the first-ratoon experiments, CP 77-1776. The outstanding characteristic of CP 77-1776 was its KS/T, both at preharvest and harvest. It yielded only 51 KS/H less than the 2-year total of CP 63-588 with 18 TC/H less than the 2-year total TC/H of CP 63-588.

Combining the data of the last 3 years (1981-83) for varieties in the second-ratoon experiments indicated no promising varieties for commercial purposes.

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Table 1.--Parentage, variety correction factors, and ratings for smut and rust susceptibility of CP 63-588, CP 70-1133, and 27 new sugarcane varieties[1]

Variety	Parentage[2]	VCF	Rating[3]	
			Smut	Rust
CP 63-588	CL 54-191 X CP 57-120	1.000	R	I
CP 70-1133[4]	67 P 6 CP 56-63	.989	R	R
CP 75-1322	CP 69-1059 X CP 57-614	.963	R	R
CP 75-1411	CP 63-588 X CP 68-1026	.963	R	R
CP 76-1050	CP 68-1154 X CP 68-1022	.963	R	R
CP 76-1053	CP 68-1154 X CP 68-1022	.989	I	R
CP 76-1306	CL 54-378 X CP 63-588	.939	R	S
CP 76-1519	CP 65-357 X CP 68-1026	.979	R	I
CP 77-1008	CP 65-357 X CL 54-1910	.954	R	S
CP 77-1049	CP 68-1154 X CP 68-1022	.998	I	R
CP 77-1055	CP 68-1154 X CP 68-1022	.980	S	I
CP 77-1125	CP 63-588 X CP 56-63	.970	R	R
CP 77-1148	CP 65-357 X CP 68-1022	.961	I	R
CP 77-1400	CP 70-1133 X CP 69-1059	.989	I	R
CP 77-1404	CP 68-1067 X CP 69-1056	.970	R	R
CP 77-1414	CP 68-1067 X CP 69-1056	.951	R	R
CP 77-1446	CP 69-1062 X CP 63-306	.987	S	S
CP 77-1720	CP 68-1154 X CP 63-588	1.012	S	R
CP 77-1776[5]	CP 68-1067 X CP 68-1022	1.005	R	R
CP 78-1038[4]	73 P 1 CP 63-588	.997	I	R
CP 78-1140[4]	73 P 2 CP 69-1052	.970	R	R
CP 78-1156	CP 70-1512 X CP 70-1133	.981	R	R
CP 78-1247[5]	CP 68-1067 X CP 57-614	1.000	R	R
CP 78-1263	CP 68-1067 X CP 57-614	.987	R	R
CP 78-1599	CP 68-1067 X CP 68-1022	1.024	I	R
CP 78-1610	CP 68-1067 X CP 68-1022	.957	R	R
CP 78-1628[5]	CP 65-357 X CP 68-1026	1.000	R	R
CP 78-1979	CP 70-1512 X CP 68-1026	.979	I	S
CP 78-2114[5]	Unknown	.987	R	R

[1]Variety correction factors (VCF) were used to calculate the theoretical yield of 96° sugar per metric ton of cane according to Arceneaux's simplification of the Winter-Carp-Geerligs formula.

[2]CL 54-191, CL 54-378, and CL 54-1910 are varieties developed by the United States Sugar Corporation, Clewiston, Fla.

[3]The following general ratings were used to describe variety susceptibility to smut and rust: R, resistant enough for commercial production. S, too susceptible for commercial production. I, intermediate; the available data are not sufficiently persuasive to determine susceptibility.

[4]67 P 6 was the 6th polycross made in the 1967 crossing season. In this polycross, the female parent (CP 56-63) was exposed to pollen from a number of male varieties; therefore, the male parent of CP 70-1133 is unknown. Explanations for CP 78-1038 and CP 78-1140 are similar.

[5]Seed cane of this variety is currently being increased by the Florida Sugar Cane League, Inc., for potential release.

Table 2.--Yields of cane, in metric tons per hectare, from plant cane on Lauderhill, Pahokee, Terra Ceia, and Torry muck and on Pompano fine sand

Variety	Average yield by soil series, farm, and harvest date								Average yield, all farms
	Lauderhill muck			Pahokee muck, South Florida Industries 3/5/83	Terra Ceia muck		Torry muck, Beardsley 1/29/83	Pompano fine sand, Lykes Bros. 11/29/82	
	Duda 2/11/83	Okeelanta 2/24/83	Saunders 3/22/83		New Farm, Inc.[1] 2/16/83	Wedgworth 3/11/83			
CP 70-1133	160.81	120.62	156.53	155.89	167.18	139.51	201.88	104.33	150.31
CP 78-2114	154.90	126.13	.....	141.40	170.16	120.10	183.21	104.90	141.96
CP 78-1247	138.65	113.49	.....	142.34	147.57	136.95	193.84	110.01	140.14
CP 78-1140	145.77	119.39	141.75	135.91	139.53	140.53	177.77	99.48	137.45
CP 78-1979	141.78	112.87	141.99	114.01	156.33	119.45	202.70	103.28	135.91
CP 78-1263	147.18	118.06	140.67	[1]125.54	159.46	123.09	171.25	99.09	135.08
CP 78-1610	127.62	117.32	.....	153.46	141.13	127.64	181.20	98.06	134.99
CP 78-1628	139.26	129.82	130.19	132.13	147.74	117.56	175.27	102.91	133.93
CP 78-1156	130.75	110.27	.....	135.26	144.00	140.96	189.37	79.74	132.50
CP 63-588	156.46	108.14	118.03	133.91	142.75	105.17	173.13	93.51	128.44
CP 78-1599	129.10	.....	.....	106.15	108.61	104.54	159.38	93.23	117.19
CP 78-1038	126.07	112.80	[2]118.15	114.22	115.84	79.32	163.33	82.36	113.66
CP 65-357	132.57								
CP 78-1680	128.72								
Mean[3]	141.53	117.07	135.24	132.67	145.03	121.24	181.03	97.58	133.70
LSD:									
5% level	10.81	19.70	9.82	14.74	12.81	17.56	14.22	14.73	9.73
10% level	8.98	16.37	8.13	12.24	10.60	14.58	11.81	12.23	8.13
CV[4]	5.30	11.65	4.95	7.70	6.00	10.04	5.45	10.46	7.67

[1]Average is of 3, not 4 replications.
[2]Average is of 2, not 4 replications.
[3]LSD for location means=3.44 metric tons per hectare at 10% probability level.
[4]CV Coefficient of variation.

Table 3.--Indicated yields of 96° sugar, in kilograms per metric ton of cane, from preharvest samples of plant cane on Lauderhill, Pahokee, Terra Ceia, and Torry muck and on Pompano fine sand

Variety	Average yield by soil series, farm, and sampling date								Average yield, all farms
	Lauderhill muck			Pahokee muck, South Florida Industries 10/20/82	Terra Ceia muck		Torry muck, Beardsley 10/18/82	Pompano fine sand, Lykes Bros. 10/27/82	
	Duda 10/21/82	Okeelanta 10/25/82	Saunders 10/27/82		New Farm, Inc.[1] 10/20/82	Wedgworth 10/21/82			
CP 78-1599	102.9	.....	.....	119.0	114.3	106.0	105.6	131.8	113.3
CP 78-1038	120.8	118.1	[2]100.5	93.4	103.1	103.4	115.6	122.2	110.3
CP 78-1247	100.2	115.4	.....	107.0	112.0	103.4	109.8	117.0	109.2
CP 78-1610	110.0	109.3	.....	114.5	105.1	103.5	77.4	124.1	106.3
CP 78-1156	77.4	119.7	.....	97.2	104.5	91.7	93.0	120.0	100.5
CP 70-1133	98.3	113.2	97.9	101.7	91.3	90.3	79.3	128.4	100.1
CP 78-1628	91.3	99.0	102.2	92.9	107.7	83.8	99.9	115.5	99.0
CP 78-1140	92.2	98.7	91.8	95.1	100.2	77.9	99.7	116.2	96.5
CP 78-1263	79.2	105.2	110.7	89.1	95.0	86.2	80.2	120.0	95.7
CP 63-588	73.8	108.1	96.9	86.1	94.7	91.8	73.2	113.7	92.3
CP 78-2114	74.3	103.8	.....	87.1	89.7	71.8	81.9	113.0	88.8
CP 78-1979	62.1	95.9	81.8	96.7	82.9	84.4	88.4	107.2	87.4
CP 65-357	.....	.....	92.4	.....	.....	.....	.....	.....	.....
CP 78-1680	.....	.....	106.9	.....	.....	.....	.....	.....	.....
Mean[3]	90.2	107.9	97.8	98.3	100.0	91.2	92.0	119.1	99.5
LSD:									
5% level	18.8	13.0	13.1	20.2	19.7	19.8	34.9	15.8	8.5
10% level	15.3	10.6	10.7	16.5	16.1	16.2	28.5	12.9	7.1
CV[4]	9.47	5.49	6.09	9.33	8.95	9.97	17.23	6.05	6.56

[1]Data are for 1, not 2 replications.
[2]Datum is for 1, not 2 replications.
[3]LSD for location means=4.3 kg per metric ton of cane at 10% probability level.
[4]CV=Coefficient of variation.

Table 4.--Indicated yields of 96° sugar, in kilograms per hectare, from preharvest samples of plant cane on Lauderhill, Pahokee, Terra Ceia, and Torry muck and on Pompano fine sand

Variety	Average yield by soil series, farm, and sampling date[1]								Average yield, all farms
	Lauderhill muck			Pahokee muck, South Florida Industries	Terra Ceia muck		Torry muck,	Pompano fine sand,	
	Duda 10/21/82	Okeelanta 10/25/82	Saunders 10/27/82	10/20/82	New Farm, Inc. 10/20/82	Wedgworth 10/21/82	Beardsley 10/18/82	Lykes Bros. 10/27/82	
CP 78-1247	13,670	14,574	.....	15,840	16,894	13,643	21,553	13,616	15,684
CP 70-1133	16,156	13,781	15,126	15,237	[2]14,842	12,859	15,994	14,254	14,777
CP 78-1610	13,594	11,976	.....	17,838	[2]16,117	13,098	13,758	11,201	13,773
CP 78-1599	12,987	.....	.....	13,008	12,549	11,080	16,936	12,597	13,193
CP 78-1140	13,643	11,824	12,692	13,659	14,486	10,687	17,448	11,019	13,182
CP 78-1628	12,707	13,279	13,775	12,824	15,034	9,925	17,047	11,507	13,144
CP 78-1263	11,409	13,542	16,099	10,754	15,557	10,387	13,564	12,630	12,993
CP 78-1156	10,566	12,694	.....	12,752	14,379	11,838	16,937	9,655	12,689
CP 78-2114	11,190	13,763	.....	12,342	14,721	8,583	15,210	11,996	12,376
CP 78-1038	14,636	13,087	[2]11,677	10,534	11,640	7,366	18,166	9,316	12,078
CP 63-588	11,587	11,479	11,573	11,403	15,094	9,556	12,786	10,895	11,577
CP 78-1979	8,445	9,957	11,718	11,847	11,664	10,736	17,347	10,893	11,570
CP 65-357	12,789								
CP 78-1680	14,391								
Mean[3]	12,549	12,723	13,412	13,170	14,360	10,813	16,395	11,632	13,084
LSD:									
5% level	3,476	3,338	2,776	2,258	2,986	3,093	6,943	3,116	1,557
10% level	2,836	2,715	2,224	1,842	2,340	2,524	5,666	2,542	1,304
CV[4]	12.58	11.78	8.75	7.79	8.09	12.99	19.24	12.17	13.24

[1]Yields are based on early sucrose analysis, assuming that early cane yields are equal to actual yields at harvest.

[2]Datum is for 1, not 2 replications.

[3]LSD for location means=632 kg per hectare at 10% probability level.

[4]CV=Coefficient of variation

Table 5.--Indicated yields of 96° sugar, in kilograms per metric ton of cane, from plant cane on Lauderhill, Pahokee, Terra Ceia, and Torry muck and on Pompano fine sand

Variety	Average yield by soil series, farm, and harvest date								Average yield, all farms
	Lauderhill muck			Pahokee muck, South Florida Industries	Terra Ceia muck		Torry muck, Beardsley	Pompano fine sand, Lykes Bros.	
	Duda 2/11/83	Okeelanta 2/24/83	Saunders 3/22/83	3/5/83	New Farm, Inc. 2/16/83	Wedgworth 3/11/83	1/29/83	11/29/82	
CP 78-1599	128.8	.....	.....	126.2	121.7	115.0	115.8	142.0	124.9
CP 78-1247	127.5	118.2	.....	123.5	124.1	113.6	125.0	134.4	123.8
CP 78-1038	120.5	116.2	116.0	116.1	122.7	113.8	116.8	136.3	120.0
CP 78-1628	111.4	114.2	122.4	129.0	116.1	105.7	114.4	143.4	119.6
CP 78-1156	112.8	118.5	.....	126.1	110.9	109.8	119.3	130.7	118.3
CP 78-1263	118.5	112.2	114.4	[1]122.2	113.1	113.4	101.9	129.5	115.5
CP 63-588	112.4	120.3	99.7	121.6	109.4	121.1	108.4	130.1	115.4
CP 78-2114	107.3	106.8	.....	117.4	114.6	96.6	112.0	128.2	111.9
CP 78-1140	105.1	113.6	105.6	111.6	109.6	102.2	110.9	128.1	110.8
CP 70-1133	108.1	104.4	107.2	115.9	105.9	103.6	108.8	131.8	110.7
CP 78-1610	114.7	108.9	.....	107.7	110.0	93.4	110.1	129.9	110.7
CP 78-1979	109.2	111.8	96.8	105.1	106.6	99.9	104.1	119.5	106.6
CP 65-357	103.8								
CP 78-1680	106.0								
Mean[2]	114.7	113.2	107.5	118.5	113.7	107.4	112.3	132.0	115.2
LSD:									
5% level	8.4	9.9	12.1	9.8	12.0	12.0	12.8	10.0	4.9
10% level	6.9	8.2	10.0	8.1	10.0	10.0	10.6	8.3	4.1
CV[3]	5.05	6.06	7.70	5.73	8.95	7.75	7.88	5.25	6.56

[1]Average is of 3, not 4 replications.
[2]LSD for location means=4.1 kg per metric ton of cane at 10% probability level.
[3]CV=Coefficient of variation.

Table 6.--Indicated yields of 96° sugar, in kilograms per hectare, from plant cane on Lauderhill, Pahokee, Terra Ceia, and Torry muck and on Pompano fine sand

Variety	Average yield by soil series, farm, and harvest date								Average yield, all farms
	Lauderhill muck			Pahokee muck, South Florida Industries	Terra Ceia muck		Torry muck, Beardsley	Pompano fine sand, Lykes Bros.	
	Duda 2/11/83	Okeelanta 2/24/83	Saunders 3/22/83	3/5/83	New Farm, Inc.[1] 2/16/83	Wedgworth 3/11/83	1/29/83	11/29/82	
CP 78-1247	17,691	13,441	.....	17,574	18,268	15,533	24,231	14,777	17,326
CP 70-1133	17,355	12,558	16,783	18,012	17,668	14,489	21,979	13,736	16,537
CP 78-2114	16,691	13,472	.....	16,649	20,061	11,649	20,543	13,451	15,926
CP 78-1628	15,524	14,842	15,933	17,046	17,110	12,441	20,026	14,711	15,917
CP 78-1156	14,757	13,068	.....	17,013	16,140	15,163	22,551	10,433	15,569
CP 78-1263	17,451	13,184	16,116	[1]15,341	17,763	13,962	17,480	12,825	15,446
CP 78-1140	15,336	13,549	14,981	15,133	15,327	14,366	19,705	12,717	15,133
CP 78-1610	14,631	12,765	.....	16,521	15,304	11,866	19,966	12,734	14,809
CP 63-588	17,606	12,996	11,802	16,287	16,353	12,731	18,869	12,090	14,793
CP 78-1599	16,616	.....	.....	13,417	13,401	12,017	18,500	13,219	14,577
CP 78-1979	15,490	12,584	13,728	12,052	16,365	11,906	21,128	12,347	14,388
CP 78-1038	15,182	13,156	[2]13,728	13,247	14,298	8,919	19,105	11,185	13,571
CP 65-357	13,711								
CP 78-1680	13,602								
Mean[3]	16,194	13,238	14,532	15,699	16,505	12,920	20,340	12,852	15,295
LSD:									
5% level	1,974	2,368	1,946	2,145	2,091	1,915	2,993	1,752	1,273
10% level	1,639	1,968	1,685	1,781	1,730	1,590	2,490	1,455	1,062
CV[4]	8.45	12.39	9.13	9.47	7.46	10.27	10.20	9.45	9.80

[1]Average is of 3, not 4 replications.
[2]Average is of 2, not 4 replications.
[3]LSD for location means=599 kg per hectare at 10% probability level.
[4]CV=Coefficient of variation.

Table 7.--Yields of cane, in metric tons per hectare, from first-ratoon cane on Lauderhill, Pahokee, Terra Ceia, and Torry muck and on Pompano fine sand

Variety	Average yield by soil series, farm, and harvest date								Average yield, all farms
	Lauderhill muck			Pahokee muck		Terra Ceia muck, Okeelanta 4/5/83	Torry muck, Beardsley 1/27/83	Pompano fine sand, Lykes Bros. 11/30/82	
	New Farm, Inc. 1/6/83	Duda 1/29/83	Saunders 3/12/83	Wedgworth 12/10/82	South Florida Industries 3/4/83				
CP 77-1414	140.75	151.23	110.19	147.48	141.91	106.26	145.31	99.16	130.29
CP 77-1055	129.71	132.70	104.42	148.40	133.23	112.77	155.54	72.04	123.60
CP 77-1008	124.46	118.51	99.71	146.84	138.27	89.48	139.24	70.66	115.90
CP 77-1125	117.74	119.68	73.08	142.69	111.96	64.71	152.42	85.74	108.50
CP 77-1148	108.02	133.11	89.47	142.28	126.63	89.28	118.58	60.36	108.47
CP 77-1720	109.04	127.02	105.56	121.85	122.65	106.99	122.43	51.67	108.40
CP 77-1446	103.57	121.49	103.31	145.82	117.40	82.43	101.84	80.74	107.08
CP 63-588	88.40	112.76	87.92	118.71	103.33	79.71	164.56	72.51	103.49
CP 77-1404	95.74	108.92	74.00	107.96	115.32	82.01	165.15	58.57	100.96
CP 77-1776	86.04	102.15	81.65	116.05	96.00	54.47	112.94	64.83	89.26
CP 77-1049	105.21	51.50	83.47	110.13	99.76	51.11	133.04	64.51	87.34
CP 77-1400	53.45	93.41	83.44	112.04	77.81	55.98	103.59	62.10	80.23
Mean[1]	105.18	114.37	91.35	130.02	115.36	81.27	134.56	70.24	105.29
LSD:									
5% level	23.15	13.57	14.77	14.22	18.13	17.47	20.59	12.92	14.10
10% level	19.23	11.26	12.26	11.81	15.06	14.50	17.09	10.73	11.75
CV[2]	15.26	8.22	11.21	7.58	10.90	14.90	10.61	12.76	11.32

[1]LSD for location means=6.11 metric tons per hectare at 10% probability level.
[2]CV=Coefficient of variation.

Table 8.--Indicated yields of 96° sugar, in kilograms per metric ton of cane, from preharvest samples of first-ratoon cane on Lauderhill, Pahokee, Terra Ceia, and Torry muck and on Pompano fine sand

Variety	Average yield by soil series, farm, and sampling date								Average yield, all farms
	Lauderhill muck			Pahokee muck		Terra Ceia muck, Okeelanta 10/25/82	Torry muck, Beardsley 10/18/82	Pompano fine sand, Lykes Bros. 10/27/82	
	New Farm, Inc. 10/20/82	Duda 10/21/82	Saunders 10/27/82	South Florida Industries 10/20/82	Wedgworth 10/21/82				
CP 77-1776	119.1	126.3	125.2	120.0	117.7	132.9	112.6	138.7	124.1
CP 77-1049	93.6	117.7	120.1	112.3	100.7	131.2	104.9	129.6	113.8
CP 77-1148	109.1	111.4	107.6	122.3	91.5	130.7	109.6	124.4	113.3
CP 77-1446	106.4	98.7	107.8	119.5	110.5	127.2	107.6	120.2	112.2
CP 77-1720	102.3	114.0	128.9	118.3	96.1	107.2	101.7	129.2	112.2
CP 77-1055	89.9	120.0	120.0	104.8	93.6	120.9	97.3	133.5	110.0
CP 77-1400	106.6	113.0	117.1	72.1	102.4	126.9	102.1	123.3	107.9
CP 77-1414	91.8	104.4	108.4	103.2	102.0	90.9	114.5	112.9	103.5
CP 77-1404	91.8	110.4	108.6	79.5	92.3	111.7	101.5	124.6	102.6
CP 63-588	100.7	97.2	91.9	84.5	91.9	113.6	100.5	115.2	101.6
CP 77-1125	101.0	90.1	102.6	90.0	86.5	104.9	98.0	124.1	99.7
CP 77-1008	92.2	96.3	97.6	97.1	82.9	106.1	91.3	109.3	96.6
Mean[1]	100.4	108.3	112.8	102.0	97.3	117.0	103.5	123.8	108.1
LSD:									
5% level	22.5	10.9	13.3	17.3	15.4	9.5	14.7	11.4	6.0
10% level	18.4	8.9	10.8	14.1	12.6	7.7	12.0	9.3	4.9
CV[2]	14.42	6.46	7.57	10.91	10.19	5.21	9.10	5.91	8.85

[1]LSD for location means=4.1 kg per metric ton of cane at 10% probability level.
[2]CV=Coefficient of variation.

Table 9.--Indicated yields of 96° sugar, in kilograms per hectare, from preharvest samples of first-ratoon cane on Lauderhill, Pahokee, Terra Ceia, and Torry muck and on Pompano fine sand

Variety	Average yield by soil series, farm, and sampling date[1]								Average yield, all farms
	Lauderhill muck			Pahokee muck		Terra Ceia muck, Okeelanta 10/25/82	Torry muck, Beardsley 10/18/82	Pompano fine sand, Lykes Bros. 10/27/82	
	New Farm, Inc. 10/20/82	Duda 10/21/82	Saunders 10/27/82	South Florida Industries 10/20/82	Wedgworth 10/21/82				
CP 77-1414	14,576	16,833	11,390	14,697	14,789	9,902	17,610	10,666	13,808
CP 77-1055	10,180	14,872	12,835	14,758	12,980	15,278	14,397	7,556	12,857
CP 77-1446	11,986	12,114	10,794	14,101	15,801	10,371	12,388	9,079	12,079
CP 77-1720	11,826	14,520	14,498	13,828	11,617	11,441	12,482	5,516	11,966
CP 77-1148	11,908	14,509	9,517	14,533	12,715	10,316	14,197	6,351	11,756
CP 77-1776	11,311	12,282	10,093	11,191	13,329	8,275	13,287	7,840	10,951
CP 77-1008	11,615	10,314	9,296	14,056	11,515	9,345	12,314	7,482	10,742
CP 77-1125	12,524	10,755	7,158	9,832	12,665	7,095	15,402	10,350	10,723
CP 77-1404	9,457	12,402	7,731	9,176	10,018	9,542	16,761	5,428	10,064
CP 63-588	9,883	10,542	9,012	8,160	10,506	8,225	15,985	7,526	9,980
CP 77-1049	11,114	6,544	9,115	10,518	10,743	5,394	13,643	7,581	9,331
CP 77-1400	6,169	9,916	9,250	4,455	11,450	7,583	9,623	7,925	8,296
Mean[2]	11,046	12,133	10,057	11,609	12,344	9,397	14,007	7,775	10,404
LSD:									
5% level	3,984	2,679	3,425	2,812	4,407	3,238	4,895	2,887	1,871
10% level	3,251	2,186	2,795	2,294	3,596	2,643	3,995	2,356	1,563
CV[3]	16.39	10.03	15.47	11.00	16.22	15.66	15.88	16.87	14.89

[1]Yields are based on early sucrose analysis, assuming that early cane yields are equal to actual yields at harvest.

[2]LSD for location means=475 kg per hectare at 10% probability level.

[3]CV=Coefficient of variation.

Table 10.--Indicated yields of 96° sugar, in kilograms per metric ton of cane, from first-ratoon cane on Lauderhill, Pahokee, Terra Ceia, and Torry muck and on Pompano fine sand

Variety	Average yield by soil series, farm, and harvest date								Average yield, all farms
	Lauderhill muck			Pahokee muck		Terra Ceia muck, Okeelanta 4/5/83	Torry muck, Beardsley 1/27/83	Pompano fine sand, Lykes Bros. 11/30/82	
	New Farm, Inc. 1/6/83	Duda 1/29/83	Saunders 3/12/83	Wedgworth 12/10/82	South Florida Industries 3/4/83				
CP 77-1776	130.1	135.7	138.4	137.2	131.0	131.5	122.6	150.5	134.6
CP 77-1720	120.5	128.7	130.5	116.7	125.0	122.0	111.6	134.0	123.6
CP 77-1049	119.4	117.6	141.4	122.0	132.1	115.1	98.7	134.0	122.5
CP 77-1125	107.0	135.6	131.6	111.2	115.6	114.1	116.9	130.9	120.4
CP 77-1055	112.6	125.0	128.4	122.1	118.4	111.1	108.5	134.1	120.0
CP 77-1404	114.4	121.4	129.5	110.5	119.8	112.5	119.5	131.0	119.8
CP 77-1148	112.0	124.8	119.1	115.4	113.8	115.8	102.3	131.7	116.9
CP 63-588	109.6	114.2	122.6	107.4	121.5	112.4	104.7	134.7	115.9
CP 77-1446	111.9	122.5	116.0	123.6	118.2	98.2	105.9	125.3	115.2
CP 77-1400	104.8	113.0	125.6	110.2	102.5	115.7	98.3	130.5	112.6
CP 77-1414	109.9	110.5	110.2	113.8	107.4	97.5	109.6	124.8	110.5
CP 77-1008	98.3	109.1	106.3	105.5	108.7	94.2	94.8	121.8	104.9
Mean[1]	112.6	121.5	125.0	116.3	117.8	111.7	107.8	131.9	118.1
LSD:									
5% level	7.6	12.7	8.3	8.3	12.2	15.7	11.9	9.0	5.4
10% level	6.3	10.5	6.9	6.9	10.2	13.0	9.9	7.5	4.6
CV[2]	4.71	7.24	4.62	4.98	7.21	9.73	7.66	4.75	6.49

[1]LSD for location means=3.8 kg per metric ton of cane at 10% probability level.
[2]CV=Coefficient of variation.

Table 11.--Indicated yields of 96° sugar, in kilograms per hectare, from first-ratoon cane on Lauderhill, Pahokee, Terra Ceia, and Torry muck and on Pompano fine sand

Variety	Average yield by soil series, farm, and harvest date								Average yield, all farms
	Lauderhill muck			Pahokee muck		Terra Ceia muck, Okeelanta 4/5/83	Torry muck, Beardsley 1/27/83	Pompano fine sand, Lykes Bros. 11/30/82	
	New Farm, Inc. 1/6/83	Duda 1/29/83	Saunders 3/12/83	Wedgworth 12/10/82	South Florida Industries 3/4/83				
CP 77-1055	14,610	16,564	13,419	18,108	15,779	12,528	16,819	9,646	14,684
CP 77-1414	15,453	16,740	12,147	16,749	15,257	10,350	15,938	12,378	14,377
CP 77-1720	13,283	16,357	13,727	14,246	15,439	13,033	13,693	6,903	13,335
CP 77-1125	12,535	16,216	9,601	15,845	12,945	7,395	17,836	11,221	12,949
CP 77-1148	12,098	16,564	10,627	16,417	14,466	10,461	12,265	7,956	12,607
CP 77-1446	11,541	14,898	11,972	17,986	13,871	8,334	10,827	10,133	12,445
CP 77-1008	12,234	12,928	10,618	15,537	15,085	8,437	13,143	8,615	12,075
CP 77-1404	10,965	13,229	9,600	11,937	13,819	9,178	19,810	7,663	12,025
CP 77-1776	11,227	13,837	11,328	15,903	12,643	7,135	15,938	9,762	11,961
CP 63-588	9,657	12,895	10,760	12,762	12,514	8,939	13,850	9,750	11,822
CP 77-1049	12,503	6,102	11,812	13,439	13,162	5,874	13,105	8,564	10,570
CP 77-1400	5,610	10,571	10,418	12,349	8,072	6,459	10,223	8,130	8,979
Mean[1]	11,810	13,908	11,336	15,106	13,588	9,010	14,567	9,227	12,319
LSD:									
5% level	2,730	2,011	1,853	1,841	2,861	2,578	3,109	1,813	1,844
10% level	2,267	1,670	1,539	1,529	2,376	2,141	2,582	1,506	1,543
CV[2]	16.02	10.02	11.33	8.45	14.60	19.83	14.79	13.62	13.51

[1]LSD for location means=866 kg per hectare at 10% probability level.
[2]CV=Coefficient of variation.

Table 12.--Yields of cane, in metric tons per hectare, from second-ratoon cane on Lauderhill, Pahokee, Terra Ceia, and Torry muck and on Pompano fine sand

Variety	Average yield by soil series, farm, and harvest date							Average yield, all farms
	Lauderhill muck		Pahokee muck		Terra Ceia muck, Wedgworth 3/10/83	Torry muck, Beardsley 1/27/83	Pompano fine sand, Lykes Bros. 12/28/82	
	Duda 12/3/82	Saunders 3/21/83	Okeelanta 11/24/82	South Florida Industries 3/3/83				
CP 76-1306	138.58	101.11	114.08	108.84	129.61	128.68	73.25	113.45
CP 75-1322	135.26	95.62	96.14	117.04	107.72	148.12	90.00	112.84
CP 76-1519	106.94	79.93	109.28	102.71	105.61	118.17	86.48	104.52
CP 63-588	119.23	79.30	84.81	107.18	96.60	140.29	84.55	101.71
CP 75-1411	107.25	82.91	81.94	100.57	100.04	133.89	74.41	97.29
CP 76-1053	102.43	75.04	77.30	95.35	103.59	111.79	51.19	88.10
CP 76-1050	96.77	62.81	72.02	85.40	93.86	120.76	82.63	87.75
Mean[1]	118.42	82.39	90.80	102.44	105.29	128.81	77.50	100.81
LSD:								
5% level	12.32	20.85	10.76	12.52	11.41	10.95	25.88	10.02
10% level	10.17	17.21	8.88	10.33	9.75	9.04	21.36	8.32
CV[2]	7.00	17.03	7.98	8.22	7.29	5.72	22.48	18.23

[1]LSD for location means=4.42 metric tons per hectare at 10% probability level.
[2]CV=Coefficient of variation.

Table 13.--Indicated yields of 96° sugar, in kilograms per metric ton of cane, from preharvest samples of second-ratoon cane on Lauderhill, Pahokee, Terra Ceia, and Torry muck and on Pompano fine sand

Variety	Average yield by soil series, farm, and sampling date								Average yield, all farms
	Lauderhill muck		Pahokee muck			Terra Ceia muck, Wedgworth 10/21/82	Torry muck, Beardsley 10/18/82	Pompano fine sand, Lykes Bros. 10/27/82	
	Duda 10/21/82	Saunders 10/27/82	New Farm, Inc. 10/20/82	South Florida Industries 10/20/82	Okeelanta 10/25/82				
CP 76-1050.....	115.3	103.1	118.3	101.9	102.6	119.5	99.1	117.2	109.6
CP 76-1053.....	111.6	112.1	112.3	106.9	100.9	107.5	95.0	123.5	108.7
CP 63-588.....	107.6	91.8	101.3	99.9	107.7	112.7	106.7	130.3	107.2
CP 76-1519.....	87.5	106.1	109.1	102.3	107.0	106.5	103.1	125.1	105.8
CP 75-1411.....	79.1	96.4	107.3	104.8	108.3	118.1	98.9	119.4	104.0
CP 75-1322.....	101.3	105.2	86.7	96.7	102.8	98.3	106.6	126.9	103.0
CP 76-1306.....	93.7	95.9	101.4	101.7	100.1	100.6	92.8	109.6	99.5
Mean[1].....	99.5	101.5	105.2	102.0	104.2	109.0	100.3	121.7	105.4
LSD:									
5% level..	27.2	33.0	36.8	31.7	24.3	9.1	17.4	22.4	20.8
10% level.	21.6	26.2	29.2	25.2	19.3	7.3	13.8	17.8	17.3
CV[2].....	11.17	13.28	14.70	14.75	9.54	3.43	11.20	8.89	10.68

[1]LSD for location means=4.3 kg per metric ton of cane at 10% probability level.
[2]CV=Coefficient of variation.

Table 14.--Indicated yields of 96° sugar, in kilograms per hectare, from preharvest samples of second-ratoon cane on Lauderhill, Pahokee, Terra Ceia, and Torry muck and on Pompano fine sand

Variety	Average yield by soil series, farm, and sampling date[1]							Average yield, all farms
	Lauderhill muck		Pahokee muck		Terra Ceia muck, Wedgworth 10/21/82	Torry muck, Beardsley 10/18/82	Pompano fine sand, Lykes Bros. 10/27/82	
	Duda 10/21/82	Saunders 10/27/82	South Florida Industries 10/20/82	Okeelanta 10/25/82				
CP 75-1322	13,701	10,608	11,953	9,304	10,435	15,191	10,890	11,726
CP 76-1306	12,922	10,198	11,792	11,368	13,508	11,761	7,438	11,284
CP 63-588	12,729	8,773	10,526	9,631	10,813	14,977	11,012	11,209
CP 76-1519	10,940	8,486	10,827	12,123	10,691	11,744	10,222	10,719
CP 75-1411	9,122	7,110	9,281	8,750	11,607	12,886	7,555	9,473
CP 76-1053	11,135	7,982	10,013	7,709	11,096	10,353	6,627	9,273
CP 76-1050	10,778	5,299	8,715	7,626	10,666	11,589	9,357	9,147
Mean[2]	11,618	8,351	10,444	9,502	11,259	12,643	9,014	10,404
LSD:								
5% level	4,912	2,219	3,214	2,969	3,330	4,016	8,654	1,380
10% level	3,900	1,762	2,552	2,358	2,644	3,189	6,872	1,149
CV[3]	17.28	10.86	12.58	12.77	12.09	12.98	39.23	18.20

[1]Yields are based on early sucrose analysis, assuming that early cane yields are equal to actual yields at harvest.

[2]LSD for location means=1,059 kg per hectare at 10% probability level.

[3]CV=Coefficient of variation.

Table 15.--Indicated yields of 96° sugar, in kilograms per metric ton of cane, from second-ratoon cane on Lauderhill, Pahokee, Terra Ceia, and Torry muck and on Pompano fine sand

Variety	Average yield by soil series, farm, and harvest date							Average yield, all farms
	Lauderhill muck		Pahokee muck		Terra Ceia muck, Wedgworth 3/10/83	Torry muck, Beardsley 1/27/83	Pompano fine sand, Lykes Bros. 12/28/82	
	Duda 12/3/82	Saunders 3/21/83	Okeelanta 11/24/82	South Florida Industries 3/3/83				
CP 63-588	117.5	125.9	113.7	127.8	123.9	125.2	131.0	123.6
CP 76-1050	110.8	121.6	104.8	124.1	119.0	123.3	121.0	117.8
CP 76-1519	106.9	122.3	109.1	116.5	117.2	122.3	123.1	116.8
CP 76-1053	107.1	103.7	105.9	116.2	111.5	115.7	127.4	112.5
CP 75-1322	99.2	114.6	106.0	107.1	106.5	114.4	118.4	109.5
CP 76-1306	96.5	109.9	107.3	111.3	104.2	107.6	119.0	108.0
CP 75-1411	96.0	106.8	93.7	110.3	111.8	103.3	131.3	107.6
Mean[1]	104.8	115.0	105.8	116.2	113.4	116.0	124.4	113.7
LSD:								
5% level	8.8	18.8	9.8	8.2	12.7	7.9	10.0	5.0
10% level	7.3	15.5	8.1	6.8	10.5	6.5	8.2	4.2
CV[2]	5.67	11.01	6.26	4.75	7.57	4.56	5.40	6.79

[1]LSD for location means=3.6 kg per metric ton of cane at 10% probability level.
[2]CV=Coefficient of variation.

Table 16.--Indicated yields of 96° sugar, in kilograms per hectare, from second-ratoon cane on Lauderhill, Pahokee, Terra Ceia, and Torry muck and on Pompano fine sand

Variety	Average yield by soil series, farm, and harvest date							Average yield, all farms
	Lauderhill muck		Pahokee muck		Terra Ceia muck, Wedgworth 3/10/83	Torry muck, Beardsley 1/27/83	Pompano fine sand, Lykes Bros. 12/28/82	
	Duda 12/3/82	Saunders 3/21/83	Okeelanta 11/24/82	South Florida Industries 3/3/83				
CP 63-588	14,008	9,862	9,653	13,702	12,000	17,576	11,020	12,546
CP 75-1322	13,432	10,972	10,191	12,536	11,483	16,961	10,624	12,314
CP 76-1519	13,838	9,749	11,947	11,980	12,396	14,420	10,685	12,145
CP 76-1306	13,342	11,099	12,247	12,073	13,517	13,853	8,721	12,122
CP 75-1411	10,288	8,904	7,634	11,189	11,178	13,840	9,842	10,411
CP 76-1050	10,718	7,607	7,526	10,601	11,192	14,881	9,994	10,360
CP 76-1053	10,995	7,901	8,185	11,084	11,533	12,941	6,408	9,864
Mean[1]	12,375	9,442	9,626	11,880	11,900	14,925	9,613	11,395
LSD:								
5% level	1,452	2,868	1,339	1,934	2,148	1,604	3,390	1,153
10% level	1,199	2,367	1,105	1,596	1,773	1,324	2,798	960
CV[2]	7.90	20.44	9.36	10.96	12.15	7.23	23.73	13.12

[1]LSD for location means=584 kg per hectare at 10% probability level.
[2]CV=Coefficient of variation.

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